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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,652	09/27/2001	Masuo Okada	SHIG C10804	2618

7590 03/15/2004

Norman P Soloway
Hayes Soloway Hennessey Grossman & Hage
130 West Cushing Street
Tucson, AZ 85701

EXAMINER

BELL, BRUCE F

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application

09/937,652

Applicant(s)

OKADA ET AL.

Examiner

Bruce F. Bell

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-16 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 5, 12, 13 and 20-22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-11, 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 10-110225 (see US Pat. 6,153,032 which is an English translation of that document).

JP '225 discloses a BCC structure as the crystal structure having a large hydrogen absorption. The BCC structure has an interface between the two phases of the BCC alloy that undergo the spinoidal decomposition, speeds up the migration of hydrogen atoms and improves the reaction rate. The document further disclose that the stability of the hydrides drops in the proximity of the interface due to the coherent strain between the two phases and that this drop in stability results in the improvement of the hydrogen desorption characteristics. The hydrogen absorption amount and the desorption characteristics such as plateau flatness can be controlled by controlling the increase of the concentration of wavelength after completion of the decomposition. See col. 4, lines 15-54 and col. 5, lines 18-36 of the US Patent 6153032. Table 1 of both the JP '225 document and that of US 6153032 show the alloys $\text{Ti}_{33}\text{Cr}_{42}\text{V}_{25}$, $\text{Ti}_{35}\text{Cr}_{45}\text{V}_{20}$ and

Ti₄₂Cr₃₃V₂₅, all of which meet the requirements as set forth in applicant's instant formula as set forth in claims 4 and 10.

The prior art of JP '225 (as shown by way of US 6153032) anticipates the applicant's instant invention as set forth above. Even though the prior art invention does not show $T_2 > T_1$, in the document, the prior art does show that the alloys in Table 1 do in fact meet the formula requirement as set forth by applicant's instant invention and therefore anticipate applicant's instant invention as set forth, since the same materials with the same composition have been found and therefore, will inherently have the same properties as set forth in the instant invention.

Allowable Subject Matter


3. Claims 5 and 12-16, 20-22 are allowable over the prior art of record.
4. Claims 5, 12, 13, 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest the hydrogen storage alloy of the formula recited in instant claims 5, 12 or 20.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BFB
March 08, 2004


Bruce F. Bell
Primary Examiner
Art Unit 1746